

PATENT SPECIFICATION



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COMPLETE SPECIFICATION.

Improvements relating to Dynamo-electric Generators and Motors.

I, PAUL EHRMANN, of No. 60, rue Madame, Paris, France, French citizen, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

The present invention relates to improvements in enclosed rotary electric machines of which the stator is built up of superposed plates with cooling vanes. Such a rotary electric machine is shown and described in the Specification of my Patent No. 162,281. These improvements have for their object in particular the reduction of the weight of the frame of the stator and consequently the net cost of such machines, whilst retaining facility of mounting the plates in the frame during assembly of the machine.

A rotary electric machine according to the invention is distinguished by a drum enveloping the external surface of the stator and presenting apertures through which pass clusters of cooling vanes of the stator.

In the present invention the said apertured drum is of a diameter merely sufficient to fit around the peripheries of the plates without enclosing the vanes, whereas in the prior invention the drum was of a diameter to enclose the plates and the vanes thereon, the periphery of the plates being fitted by internal ribs cast on the inside of the drum. Consequently by the present invention the drum for a given diameter of plates is smaller in diameter and hence lighter, than in the prior construction.

Arrangements according to the invention are illustrated by way of example on the accompanying drawing, in which:—

Fig. 1 is a transverse section of an electric machine according to the invention. 45

Fig. 2 is a longitudinal section of this machine taken along the diverted line 2—2 of Fig. 1.

Fig. 3 is a perspective view showing the mounting of the vaned plates in the drum of the machine of Figs. 1 and 2. 50

Fig. 4 is a plan of the type of plate entering into the constitution of the machine of Figs. 1 to 3.

The electric machine shown by way of example in Figs. 1 to 4 comprises a stator 1 built up of plates 14 with cooling vanes 10. These plates are mounted in a drum 42 which presents a cast flange 43 and an applied flange 44 keyed on at 45, the plates 14 being clamped between these flanges. The two outer borders 46 of the drum 42 serve to support and secure the two covers 47 of the machine: these covers 47 protect in a practically water-tight manner the windings and the air gap. 65

Apertures 48 are provided in the drum 42 and permit the free passage of the vanes 10 to the exterior of the drum. 70

A casing 50, having a ventilation shaft 51, surrounds the stator 1.

In order to put the plates 14 of the stator in position in the machine, it suffices to insert the successive plates obliquely in the drum 42, as indicated in Fig. 3, the vanes 10 alternatively engaging in one or another of the apertures 48 of the drum. The pack of plates thus obtained bears against the fixed inner flange 43 of the drum 42. When the vanes have fully occupied the apertures 48, the pack is completed by several unvaned plates. It finally suffices to place in position and secure the clamping flange 44. 85

The air which becomes heated by contact with the vanes 10 rises gradually

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by convection in the direction of the arrows 55 of Fig. 1, the shaft 51 intensifying the natural draught.

Further to increasing the air circulation the ventilation shaft 51 may be dispensed with and a fan may be connected to the internal free spaces comprised between the drum 42 and the casing 50.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. In a rotary electric machine having a stator built up of superposed plates (14) with cooling vanes (10), a drum (42) enveloping the external surface of the stator (1) and presenting apertures

traversed by clusters of cooling vanes (10). 20

2. A rotary electric machine according to Claim 1, in which the drum (42) presents flanges (43, 44, 46) enabling respectively the positioning and securing of the plates and the securing of applied covers (47) of the casing. 25

3. A rotary electric machine according to Claims 1 and 2, in which a casing (50) surrounds the stator (1) and is surmounted by a ventilation shaft (51), ensuring circulation of cooling air by natural draught. 30

Dated this 7th day of July, 1924.

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Agents for the Applicant. 35

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[This Drawing is a reproduction of the Original on a reduced scale.]

